REMARKS

Reconsideration is respectfully requested.

Claims 1, 2, 4-18, and 20-32 are pending. Claims 3 and 19 have been canceled.

Claims 1 and 17 have been amended to insert the phrase "of a thermal ink-jet printer" in the description of the printhead. Basis for this amendment is found in the specification on page 4, lines 29-30. Claims 1 and 17 have also been amended to incorporate the subject matter of claims 3 and 19 which relates to the temperature range to which the ink in the firing chamber is heated. No new matter has been added.

Claims 1-10 and 17-26 stand rejected under 35 U.S.C. 102(b) as being anticipated by Fukushima et al. (JP 10-279869). Claims 1-2, 5-18 and 21-32 stand rejected under 35 U.S.C. 102(e) as being anticipated by Gotoh et al. (US 6578958).

In a claimed embodiment, the present invention relates to a method of forming a protective cushion to slow down evaporation and prevent clogging in an inactive ink-jet printhead <u>of a thermal ink-jet printer</u>, the inactive ink-jet printhead comprised of at least one ink firing chamber having an opening to at least one nozzle, the method comprising the steps of:

a) heating ink-jet ink in the at least one ink firing chamber <u>to a temperature from 40° to 95°C</u>, the ink separating into an organic surfactant phase and an ink colorant phase; and

b) forming the protective cushion at the opening to the at least one nozzle by allowing the organic surfactant phase to settle as a layer on the opening of the at least one nozzle in the at least one ink firing chamber.

All the pending claims, claims1-32, relate to a method and system of slowing down evaporation and preventing clogging in an inactive ink-jet printhead by

forming a protective cushion covering an opening of at least one ink-jet nozzle in at least one ink firing chamber. The invention requires both a heating system adapted to heat ink-jet ink in the ink firing chamber to a temperature from 40° to 95°C. so that the ink separates into an organic surfactant phase and an ink colorant phase; and a cushion-forming system which forms the protective cushion from the organic surfactant phase settling as a layer on the opening of the nozzle in the ink firing chamber.

In contrast, Fukushima and Gotoh both relate to a meniscus formed from a recording liquid at a nozzle hole surface by evaporation and/or piezoelectricity at room temperature with no application of heat.

As disclosed in Fukushima, a meniscus is achieved with an ink from which the moisture and the volatile additive of the recording ink are removed until 0.3% or less of the amount of record liquid weight remains in the meniscus, the desiccation taking place at a room temperature between 20°C (66°F) and 30°C (84°F) (see detailed description of the informal translation, paragraphs 19 and 20). The reference to 40°C in paragraphs 50 and 51 does not appear (subject to a better translation) to be discussing the required conditions for making the meniscus but instead it appears to be describing procedural conditions for testing the meniscus-making equipment over long periods of time (14 days and 15 days respectively). This reference to 40°C is in contrast to the other temperature conditions discussed in related examples, such as 25°C and "ordinary" temperature discussed in paragraphs 50 and 51. Specifically, considering that the temperature range specifically set out in the claims for obtaining the meniscus is 20-30° C, "room temperature", it cannot be asserted that one skilled in the art would be taught by this reference that 40°C is a workable temperature to achieve the presently claimed invention

As disclosed in Gotoh (see description in column 20, lines 13-23; column 22, lines 13-19), such a meniscus is achieved by evaporation with a piezoelectric inkjet recording apparatus in which the amplitude of the piezoelectric pulse

applied to the meniscus-bearing non-discharging nozzle is different from that of the discharging nozzle which discharges a normal drop. The conditions for the non-discharging nozzle are created by varying the pulse width or prolonging the voltage falling time in comparison to the discharging nozzle. These variable conditions achieve an ink-based meniscus portion which can be stably vibrated. The conditions for achieving such an ink-based meniscus have no requirement for a heating step. As described in various comparative examples on column 27, lines 32 through column 28, line 39, the conditions for creating either the ink-based meniscus or a normal discharged drop are 30°C (84°F), 20% relative humidity which appear to be the normal conditions for achieving a normal discharged drop in a piezoelectric ink-jet printing system.

In the case of both Fukushima and Gotoh, the temperature conditions are in contrast to the temperature conditions required to achieve the presently claimed invention, 40°C (104°F) to 95°C (203°F). The conditions of the presently claimed invention, including the temperature range, are closely connected with the normal conditions of the thermal ink-jet printing apparatus (see from page 4, line 29 to page 5, line 5). Neither Fukushima or Gotoh relate to thermal ink-jet.

In light of the above-amendments and arguments, applicant respectfully requests that the Section 102(b) rejection be withdrawn.

A positive and timely response to this amendment is respectfully requested.

Respectfully submitted,

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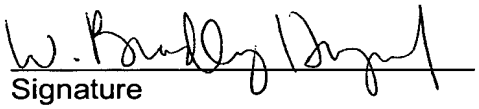

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